

FIRE HYDRANT NOTES:

1. IN GENERAL ALL FIRE HYDRANTS SHALL CONFORM TO AWWA STANDARDS SPECIFICATIONS FOR FIRE HYDRANTS FOR ORDINARY WATER WORKS SERVICE FOR WATER AND SANITARY SEWER IMPROVEMENTS. FIRE HYDRANTS SHALL HAVE A 5-1/4" MINIMUM VALVE OPENING WITH A BARREL APPROXIMATELY 6" INSIDE DIAMETER. ALL HYDRANTS SHALL BE EQUIPPED WITH A BREAKAWAY FLANGE. ALL HYDRANTS SHALL BE APPROVED BY THE CITY.

2. BONNET COLOR:

WATER MAIN CAP
6"
8"
12" AND LARGER

COLOR
TNEMEC SERIES 43-38H DIFFUSED ALUMINUM, SILVER
TNEMEC SERIES 2H HI-BUILD TNEME-GLOSS, TRUE BLUE SAFETY
TNEMEC SERIES 2H HI-BUILD TNEME-GLOSS, SAFETY YELLOW


3. ALL BOLTS AND NUTS USED WITH MECHANICAL JOINT FITTINGS SHALL BE "COR-TEN" OR APPROVED OTHER.

4. A BLUE STEMSONITE (OR APPROVED OTHER) MODEL 88-SSA FIRE HYDRANT MARKER WILL BE INSTALLED OPPOSITE FIRE HYDRANTS JUST OFF CENTER TO THE SIDE OF THE STREET ADJACENT TO THE HYDRANT.

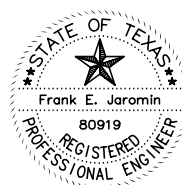
5. INSTALL POLYETHYLENE WRAP AROUND DUCTILE IRON PIPE, RELATED FITTINGS AND VALVES. THIS WRAP SHALL BE 8 MILS. THICKNESS POLYTUBE. SEAMS AND OVERLAPS SHALL BE WRAPPED AND HELD IN PLACE BY TWO (2) INCH WIDE PLASTIC BACKED ADHESIVE TAPE, POLYKEN 900, SCOTCHRAP NO. 50, OR APPROVED OTHER, WITH APPROXIMATE TWO (2) FOOT LAPS ON THE POLYTUBE. THE WRAP ON THE BARREL OF THE PIPE SHALL BE LOOSE ENOUGH TO ALLOW THE FILM TO SHIFT WITH THE SOIL. THE WRAP SHALL BE INSTALLED WITHOUT BREAKS, TEARS OR HOLES IN THE FILM.

6. IN ORDER TO MAINTAIN A MANAGEABLE PARTS INVENTORY AND WORKING KNOWLEDGE OF FIRE HYDRANTS, THE FOLLOWING FIRE HYDRANTS ARE APPROVED: M&H AND WATEROUS THREE-WAY STANDARD THREAD WITH VALVE IN LEAD NO LESS THAN 5-1/4" IN SIZE OR APPROVED OTHER.

FIRE HYDRANT

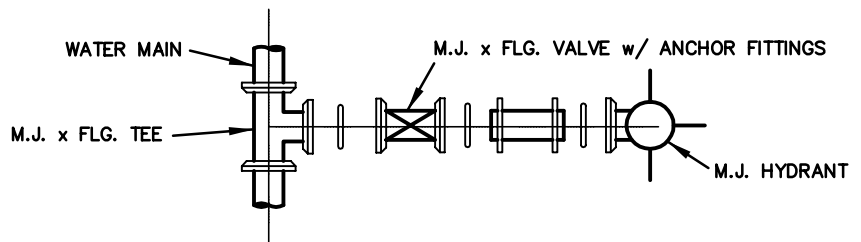
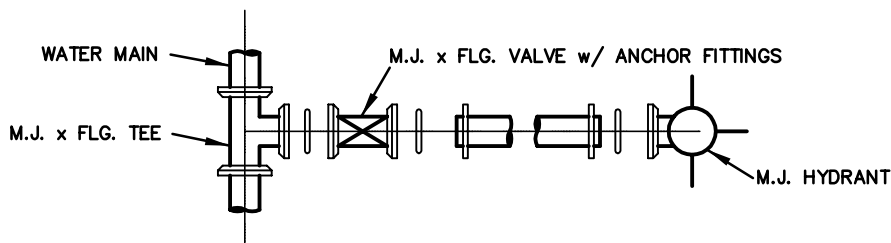
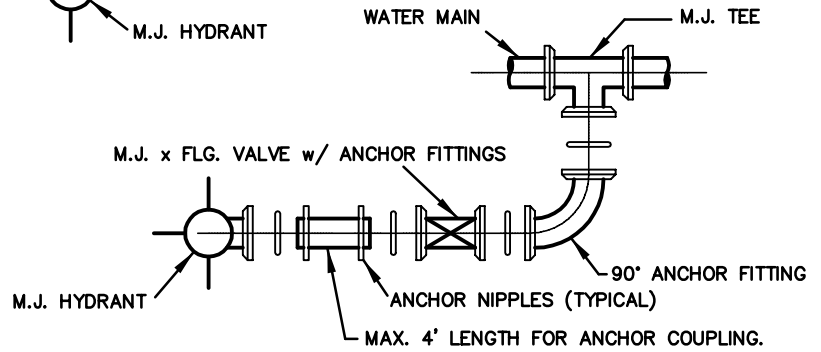
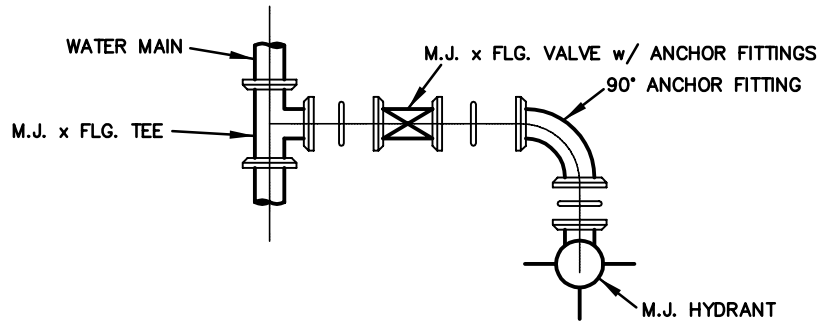
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DETAILS

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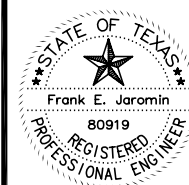
SHEET NO. : W01



NOTE:
 1. ALL FIRE HYDRANTS MUST BE
 ANCHORED TO MAIN BY USE OF
 ANCHOR FITTINGS.
 2. ANCHOR TEES ALLOWED.

FIRE HYDRANT INSTALLATION

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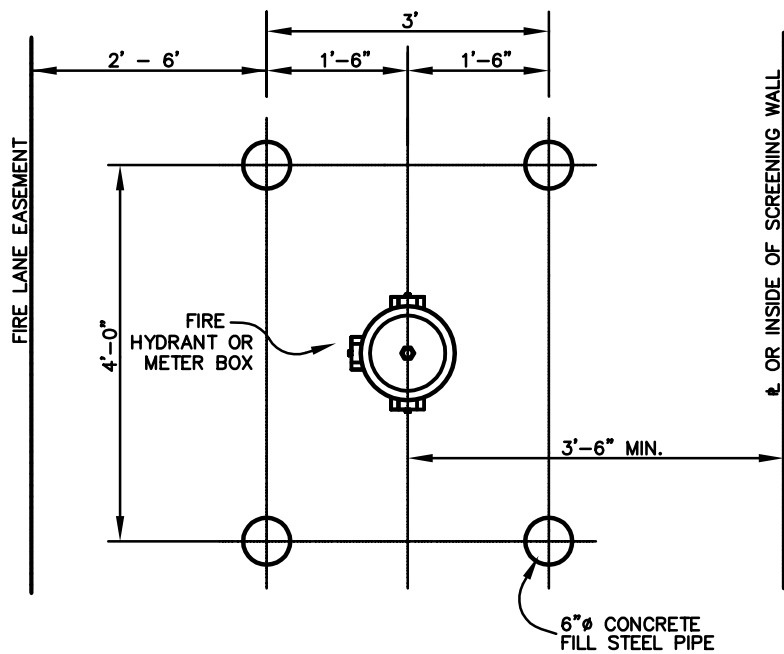
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SHEET NO. : W02

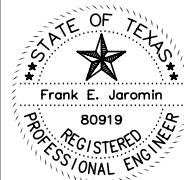
GUARD POST NOTES:

1. FOR USE WHERE CURBS ARE NOT POSSIBLE OR AS SPECIFIED BY THE CITY ENGINEER.
2. FIRE HYDRANTS SHALL BE 35' CLEAR OF ALL BUILDINGS.
3. GUARD POSTS SHALL BE 6 L.F. OF 6" DIA. STEEL PIPE (3' ABOVE & BELOW GROUND LEVEL). POST SHALL BE ENCASED IN 16" DIA. CONC. PIER TO A DEPTH OF 12" BELOW POST BOTTOM. REINF. CONC. PIER WITH 2 NO. 6 BARS (12" LONG) THRU POST INTO PIER. POST ABOVE GROUND LEVEL SHALL BE PAINTED WITH TWO (2) COATS OF ALUMINUM PAINT.



PIPE BOLLARD

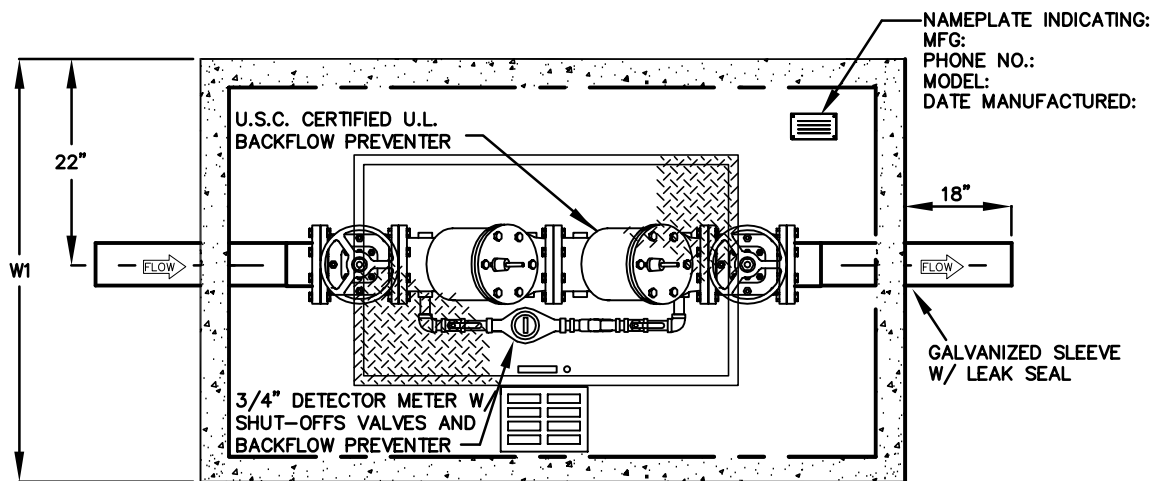
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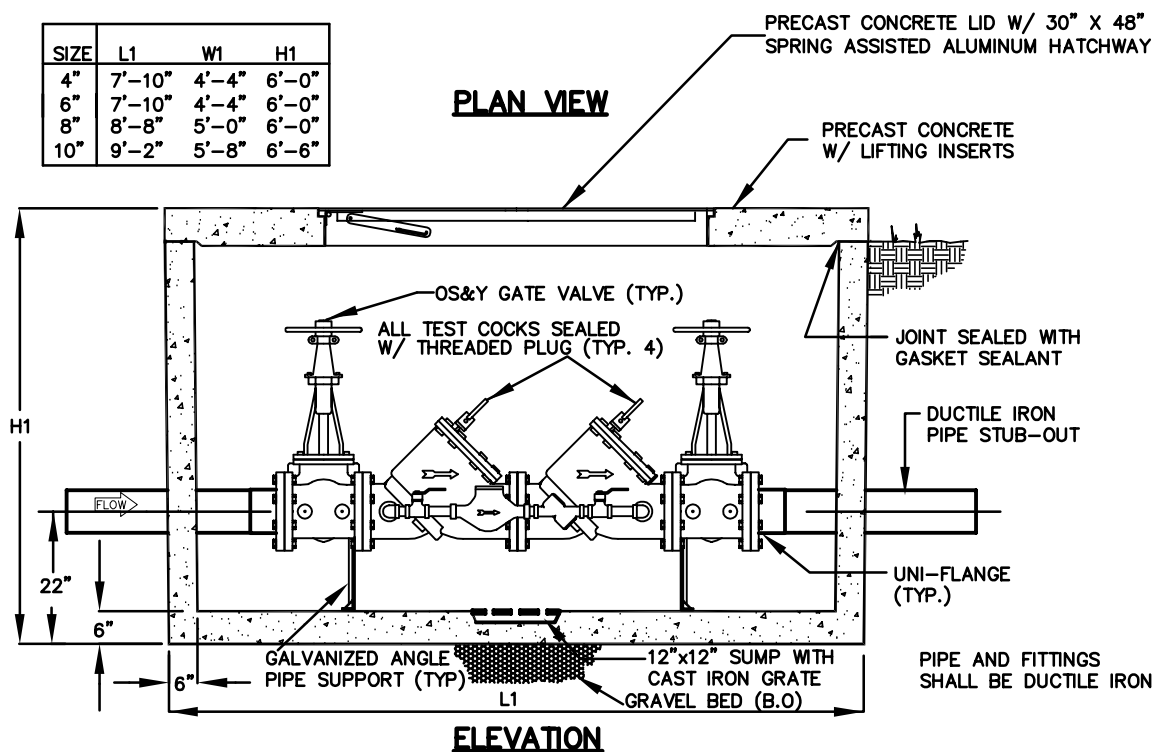
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SHEET NO. : W03



SIZE	L1	W1	H1
4"	7'-10"	4'-4"	6'-0"
6"	7'-10"	4'-4"	6'-0"
8"	8'-8"	5'-0"	6'-0"
10"	9'-2"	5'-8"	6'-6"

PLAN VIEW



ELEVATION

SPECIFICATIONS

CONCRETE : CLASS 1 CONCRETE WITH DESIGN STRENGTH OF 4500 PSI AT 28 DAYS. UNIT IS OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED DEPTH.

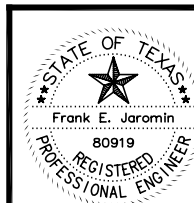
REINFORCEMENT: GRADE 60 REINFORCED. STEEL BAR CONFORMING TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.

HATCHWAY: 1/4" ALUMINUM DIAMOND PLATE COVER WITH EXTRUDED ALUMINUM FRAME. HATCH TO BE FURNISHED WITH 316 STAINLESS STEEL SNAP LOCK & BRASS HINGES.

PRECAST VAULT SHALL BE FROM PARK EQUIPMENT COMPANY MATCHING DETAIL SHOWN OR APPROVED OTHER.

DOUBLE DETECTOR CHECK FIRE VAULT

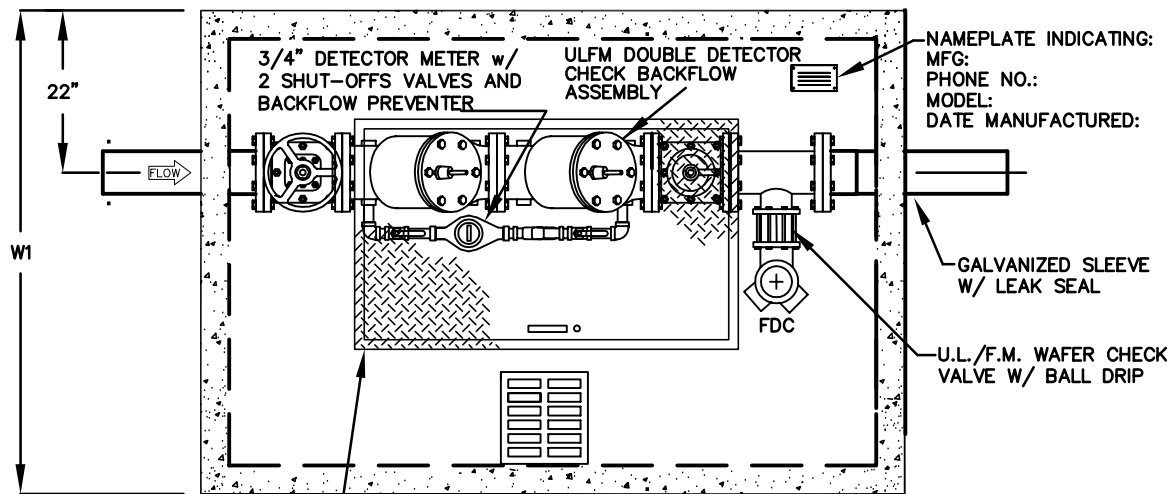
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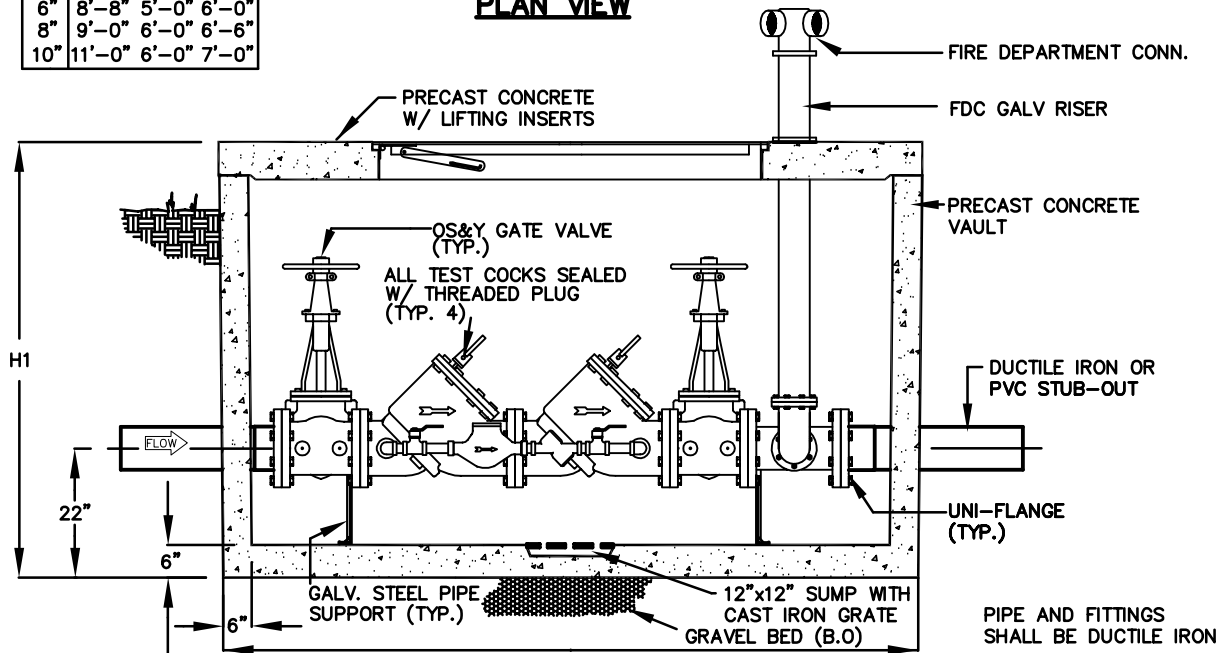
SHEET NO. : W04



SIZE	L1	W1	H1
4"	7'-10"	4'-4"	6'-0"
6"	8'-8"	5'-0"	6'-0"
8"	9'-0"	6'-0"	6'-6"
10"	11'-0"	6'-0"	7'-0"

PRECAST CONCRETE LID W/ 30" X 48"
SPRING ASSISTED ALUMINUM HATCHWAY

PLAN VIEW



ELEVATION

SPECIFICATIONS

CONCRETE : CLASS 1 CONCRETE WITH DESIGN STRENGTH OF 4500 PSI AT 28 DAYS. UNIT IS OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED DEPTH.

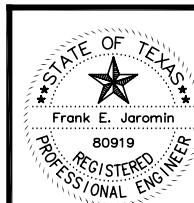
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DBL. DETECTOR CHECK FIRE VAULT AND FDC

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STANDARD CONSTRUCTION
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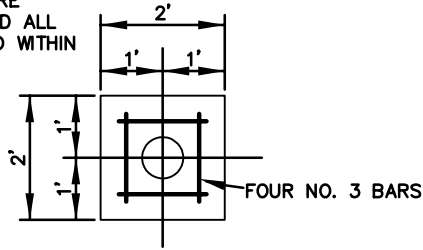


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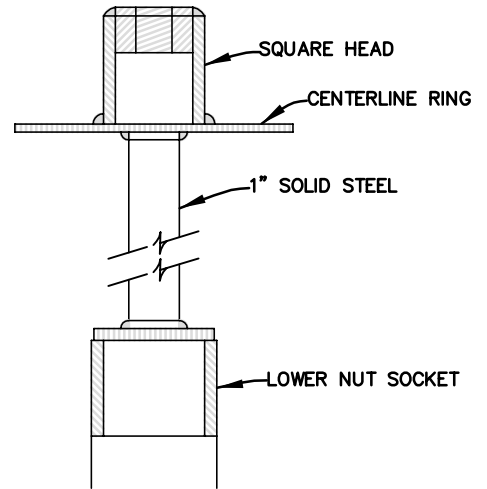
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SHEET NO. : W05

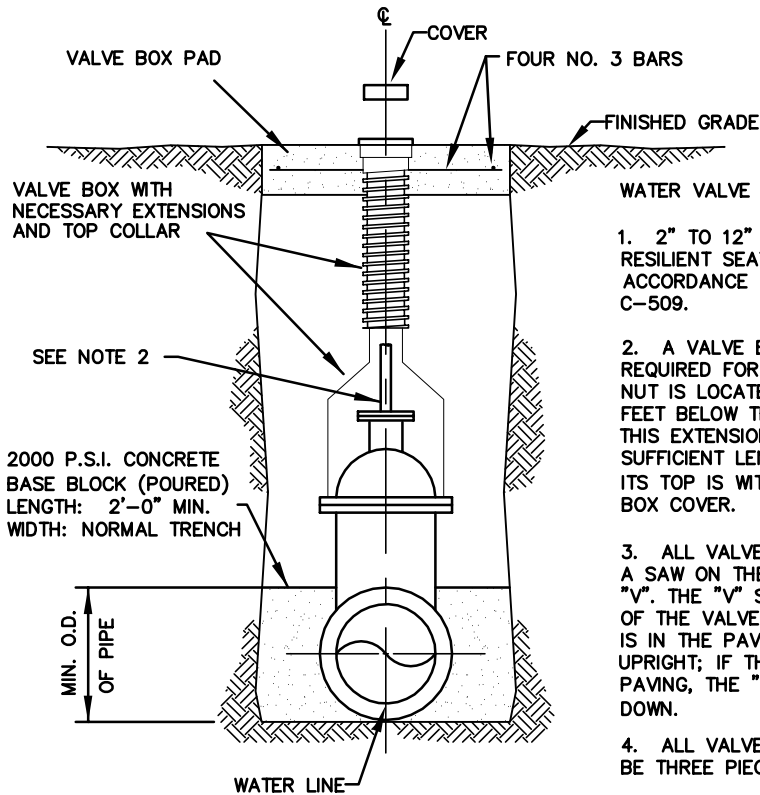
CONCRETE PAD 24" SQUARE
SHALL BE POURED AROUND ALL
VALVE BOXES NOT PLACED WITHIN
CONCRETE PAVEMENT.
3000 P.S.I. CONCRETE,
6 INCH THICK



VALVE BOX PAD PLAN
NTS



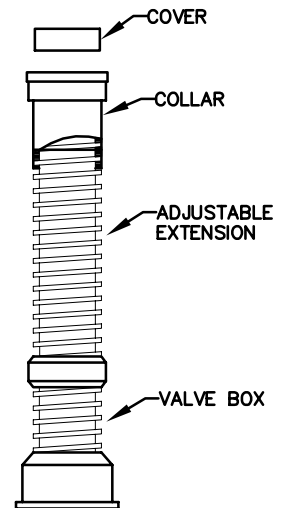
VALVE EXTENSION
NTS



VALVE SETTING & BOX
NTS

WATER VALVE NOTES:

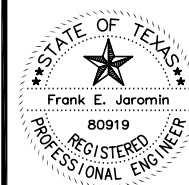
1. 2" TO 12" GATE VALVE SHALL BE RESILIENT SEATED WEDGE GATE VALVES ACCORDANCE WITH AWWA STANDARD C-509.
2. A VALVE EXTENSION STEM SHALL BE REQUIRED FOR ANY VALVE WHOSE OPERATING NUT IS LOCATED IN EXCESS OF 4 FEET BELOW THE TOP OF VALVE BOX. THIS EXTENSION SHALL BE OF SUFFICIENT LENGTH TO INSURE THAT ITS TOP IS WITHIN 2' OF THE VALVE BOX COVER.
3. ALL VALVES SHALL BE MARKED WITH A SAW ON THE CURB OR PAVEMENT WITH "V". THE "V" SHALL POINT TO THE LOCATION OF THE VALVE AS FOLLOWS: IF THE VALVE IS IN THE PAVING, THE "V" SHALL BE MARKED UPRIGHT; IF THE VALVE IS OUTSIDE THE PAVING, THE "V" SHALL BE MARKED UPSIDE DOWN.
4. ALL VALVES STACK COMPONENTS SHALL BE THREE PIECE SCREW TYPE CAST IRON.
5. IN ORDER TO MAINTAIN A MANAGEABLE PARTS INVENTORY AND WORKING KNOWLEDGE OF VALVES, THE FOLLOWING VALVES ARE APPROVED: MUELLER, M&H AND WATEROUS - 150 P.S.I. TEST.



VALVE BOX WITH EXTENSION
NTS

GATE VALVE

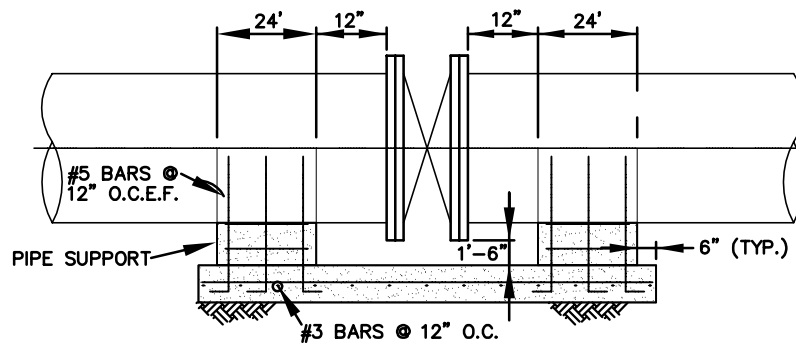
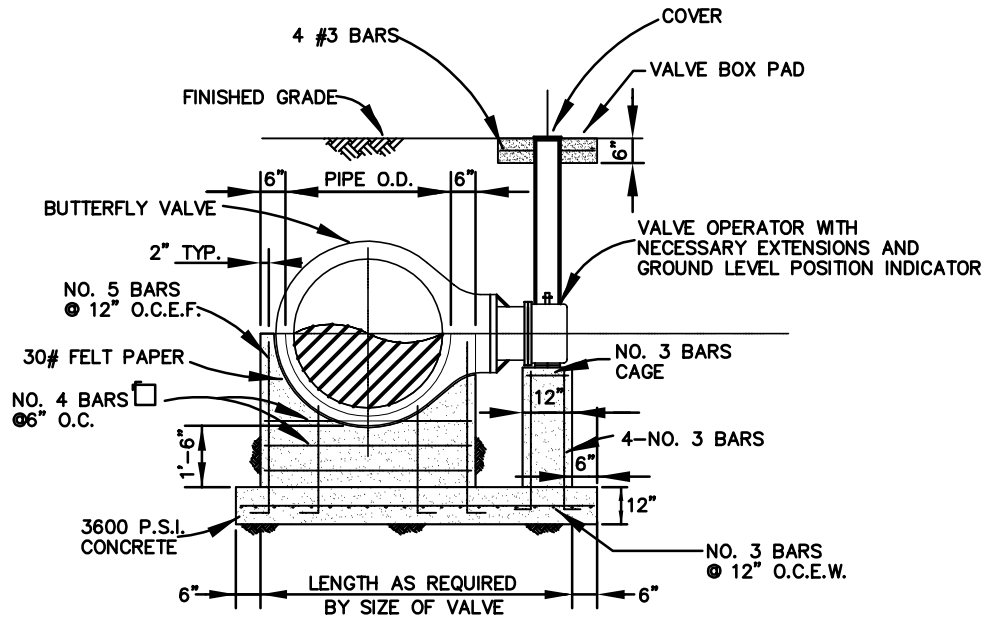
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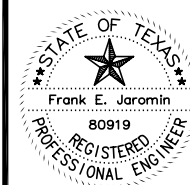


NOTES:

1. ALL OPERATING NUTS SHALL BE EXTENDED TO WITHIN 6" OF FINAL GRADE.
2. 6" BYPASS MAY BE REQUIRED BY CITY ENGINEER OR HIS/HER DESIGNEE ON SITE SPECIFIC PROJECTS.

BUTTERFLY VALVE

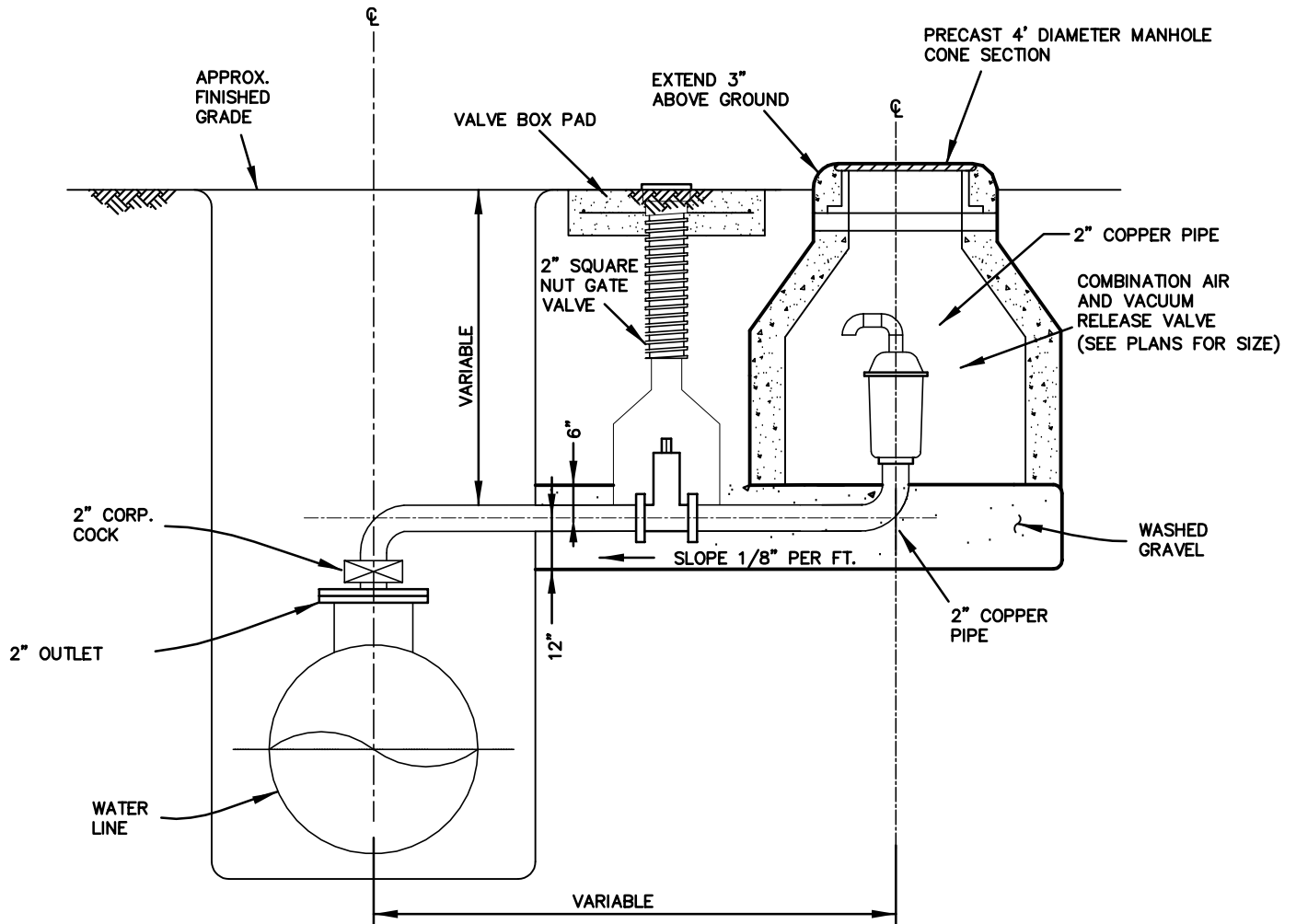
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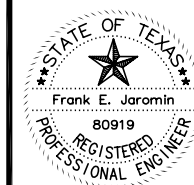


NOTES:

1. COMBINATION AIR AND VACUUM RELEASE VALVE SHALL BE APCO, CLA-VALVE OR APPROVED OTHER.
2. LARGER AIR VALVE ASSEMBLY WILL REQUIRE LARGER PIPING AND VALVE (SEE PLANS).

COMBINATION AIR AND VACUUM RELEASE VALVE

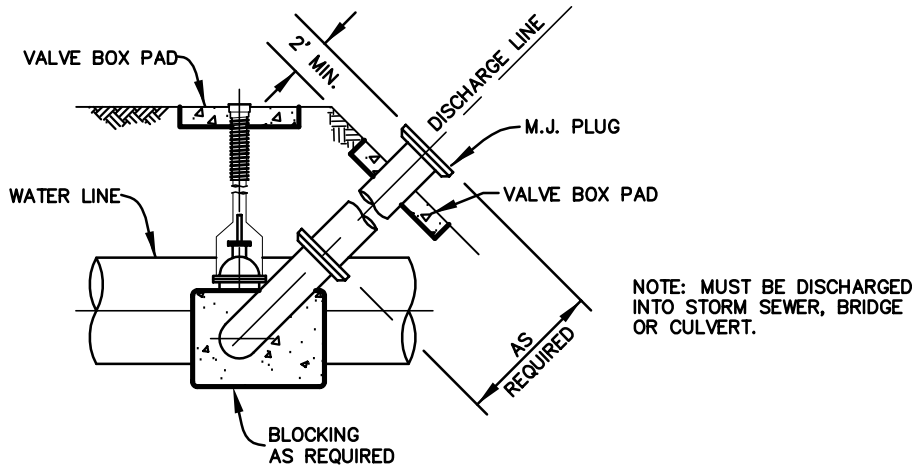
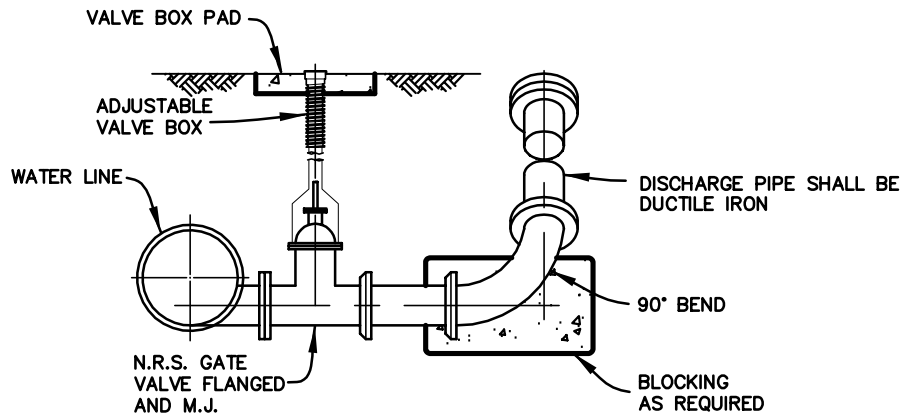
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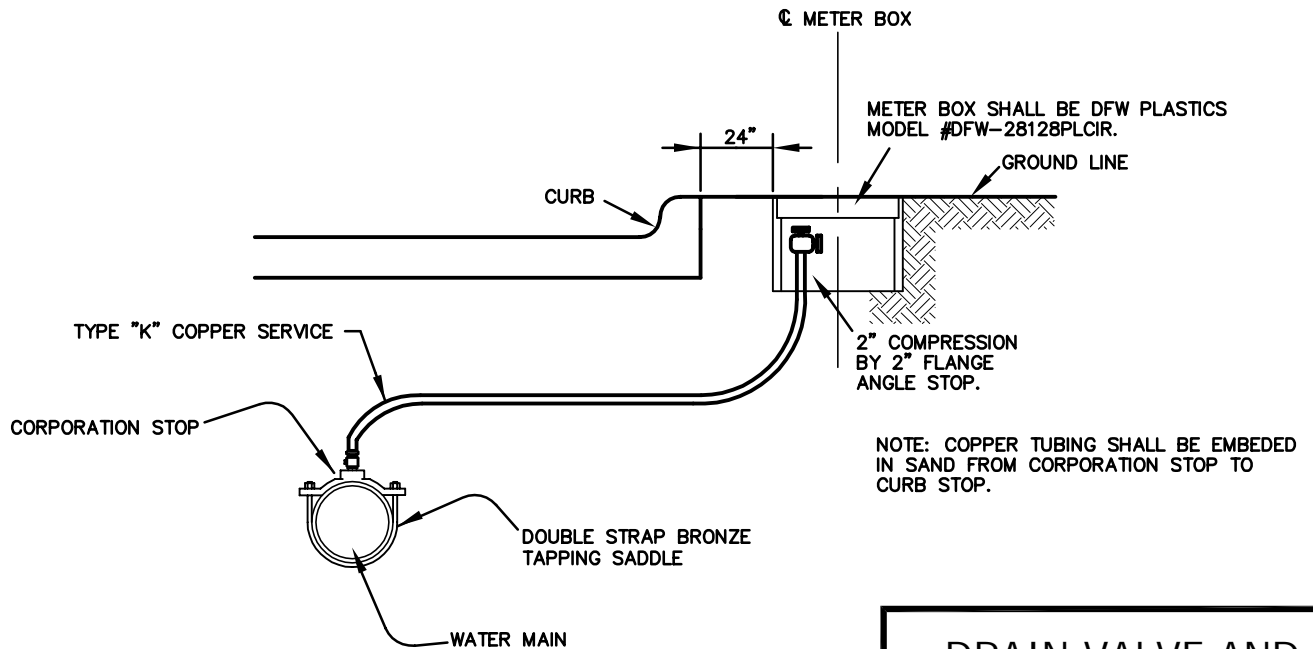
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SHEET NO. : W08



DRAIN VALVE

NTS

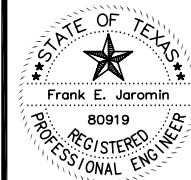


BLOW OFF VALVE WITH METER BOX **(MAINS 12" OR LESS)**

NTS

DRAIN VALVE AND BLOW OFF VALVE

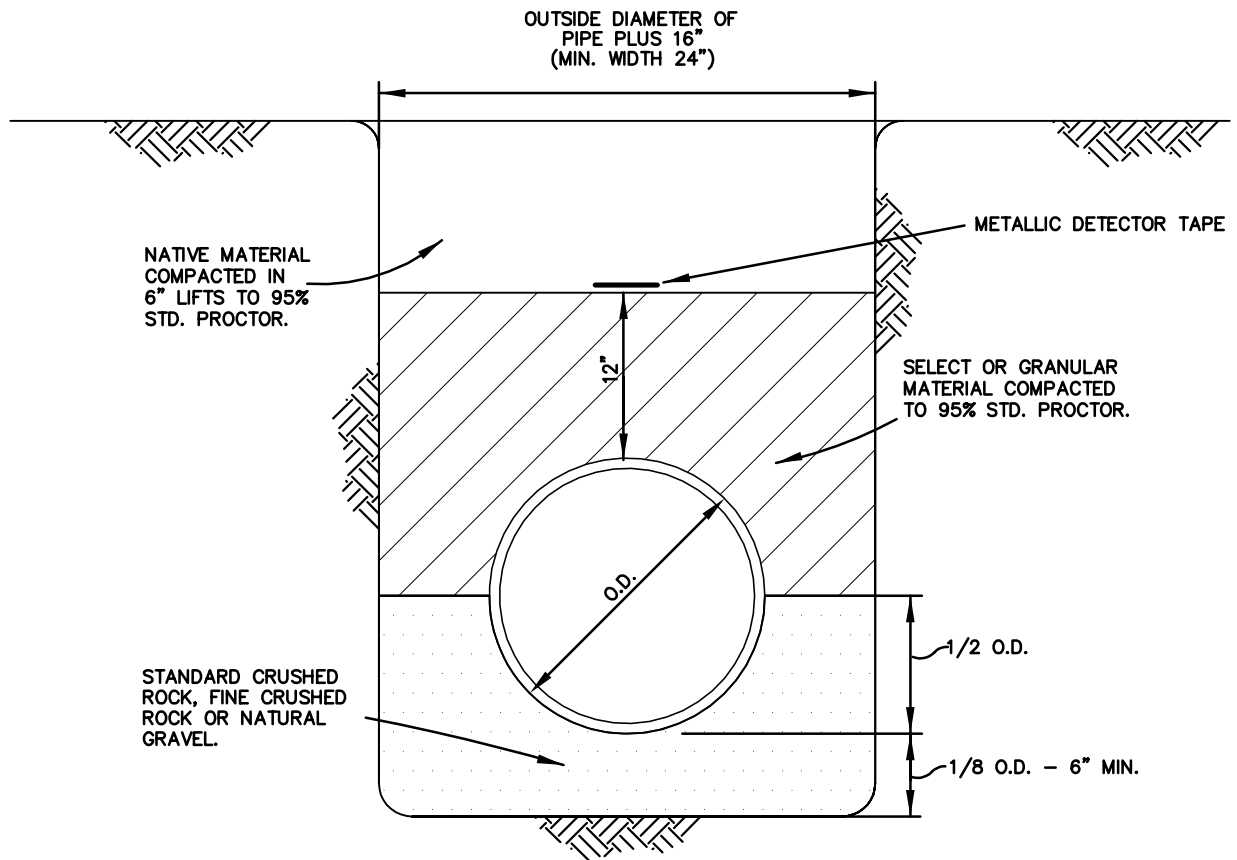
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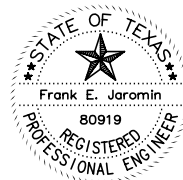
SHEET NO. : W09



MIN. STD P.V.C. WATER
NTS

CLASS F1 EMBEDMENT

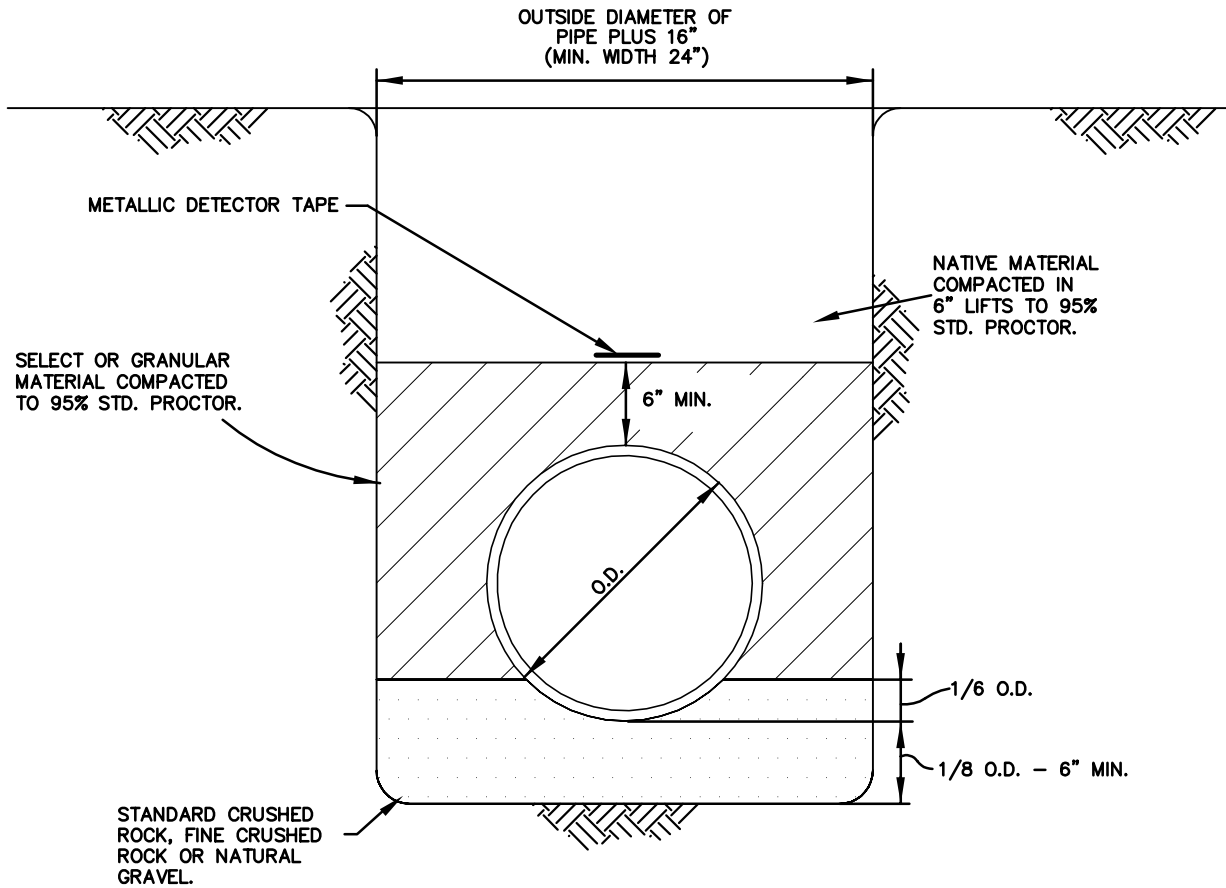
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SHEET NO. : W10

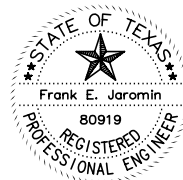


MIN. STD. DUCTILE IRON WATER
MIN. STD. R.C.C.P. WATER

NTS

CLASS F3 EMBEDMENT

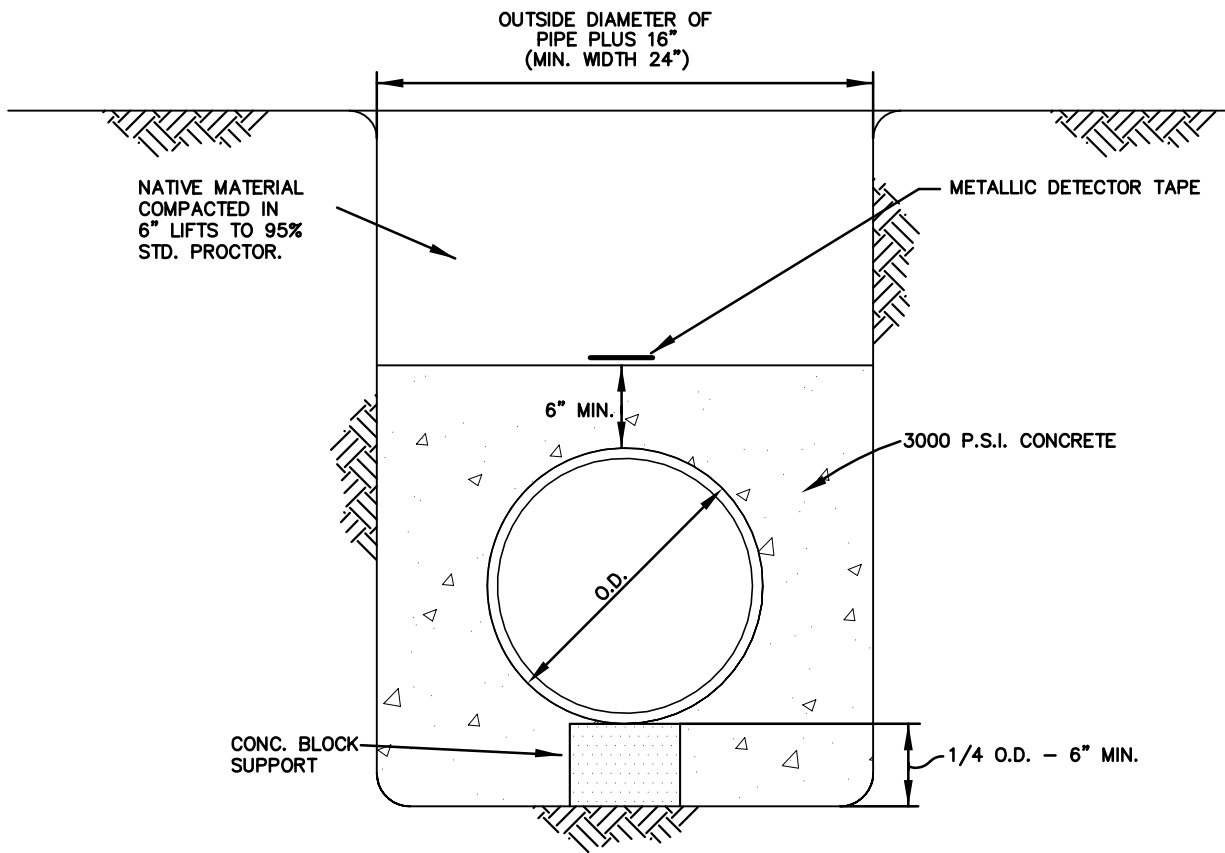
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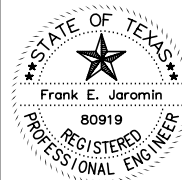


CONCRETE ENCASEMENT

NTS

CLASS F4 EMBEDMENT

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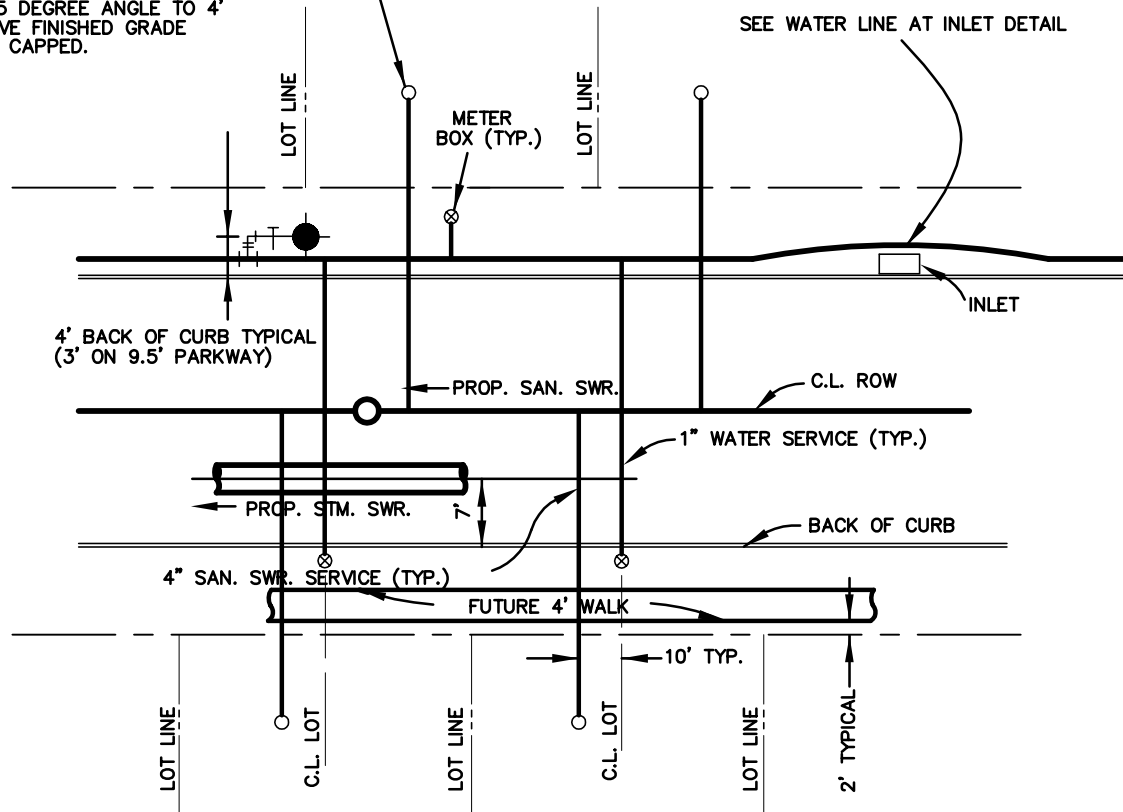


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SHEET NO. : W12

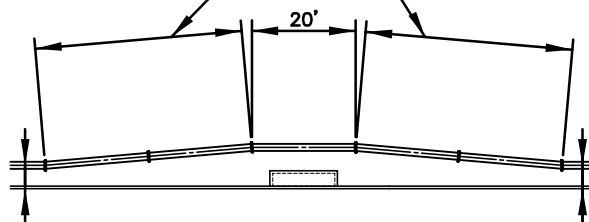
EXTEND SANITARY SEWER LATERAL
10' INSIDE PROPERTY LINE
AT A DEPTH OF 5' THEN AT
A 45 DEGREE ANGLE TO 4'
ABOVE FINISHED GRADE
AND CAPPED.



TYPICAL LOT SERVICE DETAIL

NTS

PULL PIPE USING LONGITUDINAL
BENDING (MIN. 250'R) OR JOINT
DEFLECTION IN ACCORDANCE WITH
THE MANUFACTURER'S REQUIREMENTS.




2' BACK OF CURB - TYPICAL
3' BACK OF CURB - LARGER THAN 12"

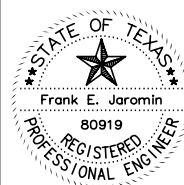
2' BACK OF CURB - TYPICAL
3' BACK OF CURB - LARGER THAN 12"

WATER LINE AT INLET DETAIL

NTS

RESIDENTIAL SERVICE LOCATIONS

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STANDARD CONSTRUCTION
DETAILS



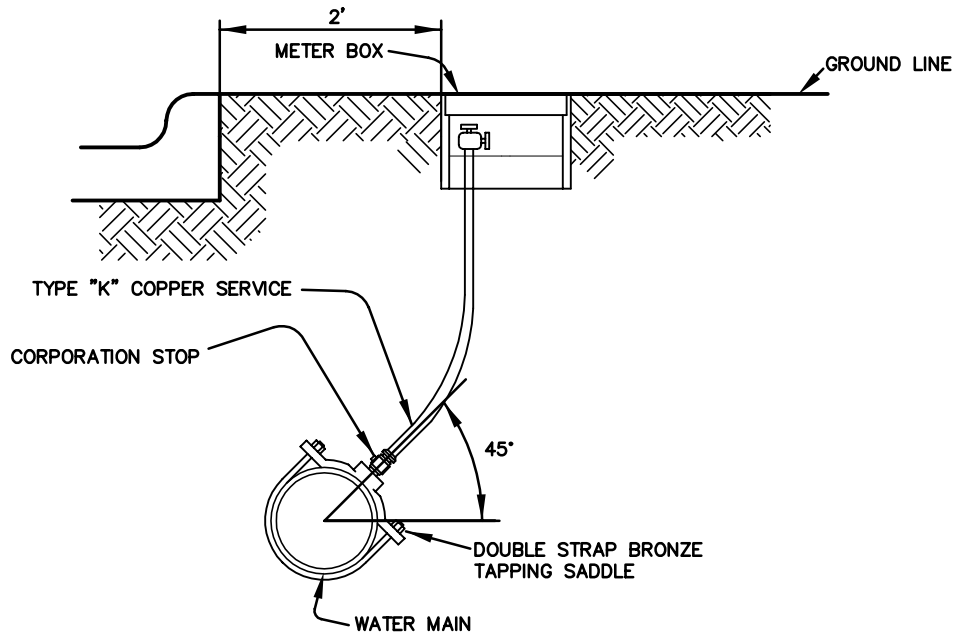
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SHEET NO. : W13

NOTES:

- A. WATER SERVICES SHALL NOT BE CONNECTED TO FIRE HYDRANT LINES.
- B. ALL MATERIALS SHALL CONFORM TO THE STANDARD SPECIFICATIONS.
- C. METER BOX SIZES:
 - 3/4" AND 1" SHALL BE DFW PLASTICS MODEL # DFW-1814PLCIRSBD.
 - 1-1/2" AND 2" SHALL BE DFW PLASTICS MODEL # DFW-28128PLCIR.
- D. METER BOX SHALL BE LOCATED OUT OF ALL FLATWORK, SIDEWALKS AND APPROACHES.

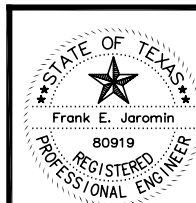


GENERAL INSTALLATION NOTES:

1. WATER METER SHALL BE PLACED IN CENTER OF LOT WITH THE SANITARY SEWER HOUSE CONNECTION TO BE LOCATED 10 FEET DOWNSTREAM. ALL TAPS SHALL BE MADE AT A 45° ANGLE TO THE CENTERLINE OF THE PIPE.
2. THE CONTRACTOR SHALL SET THE METER BOX IN ALL CASES.
3. THE METER BOX SHALL BE SET WITHIN THE RIGHT-OF-WAY OR A DEDICATED WATER EASEMENT. IN ALL CASES THE METER BOX SHALL BE PROTECTED FROM VEHICULAR TRAFFIC.
4. WATER METER BOX SHALL BE PROTECTED BY A 6" CURB OR GUARD POSTS WHEN PLACED IN A PAVED AREA, WHICH REQUIRES SPECIFIC APPROVAL BY THE CITY ENGINEER OR HIS/HER DESIGNEE.
5. COPPER TUBING SHALL BE EMBEDDED IN SAND FROM CORPORATION STOP TO CURB STOP.

TYPICAL SERVICE CONNECTION

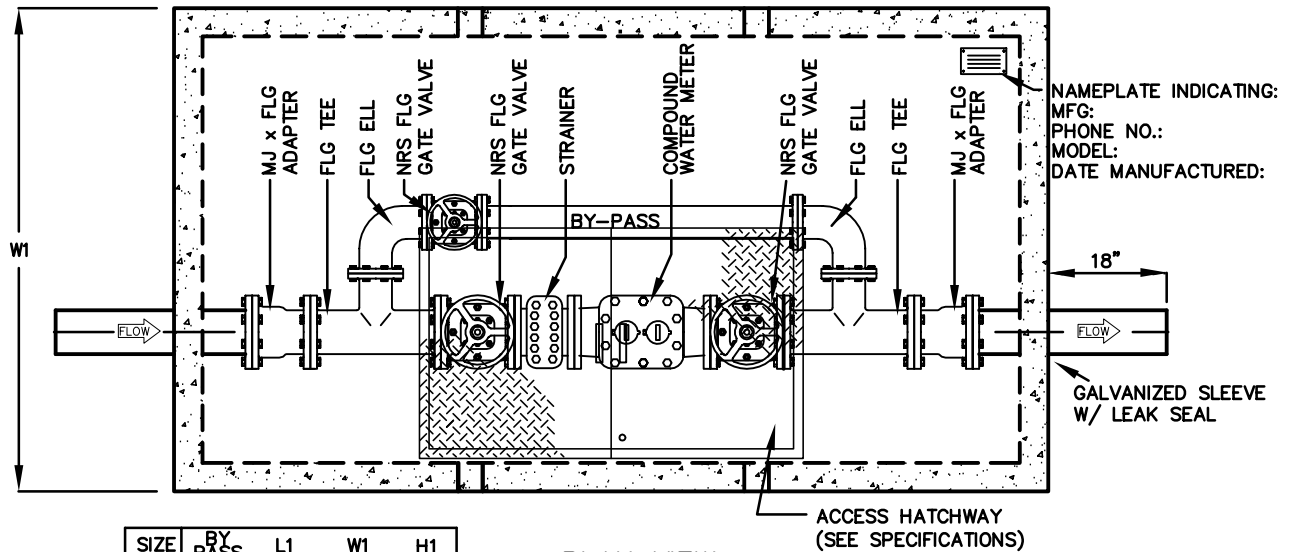
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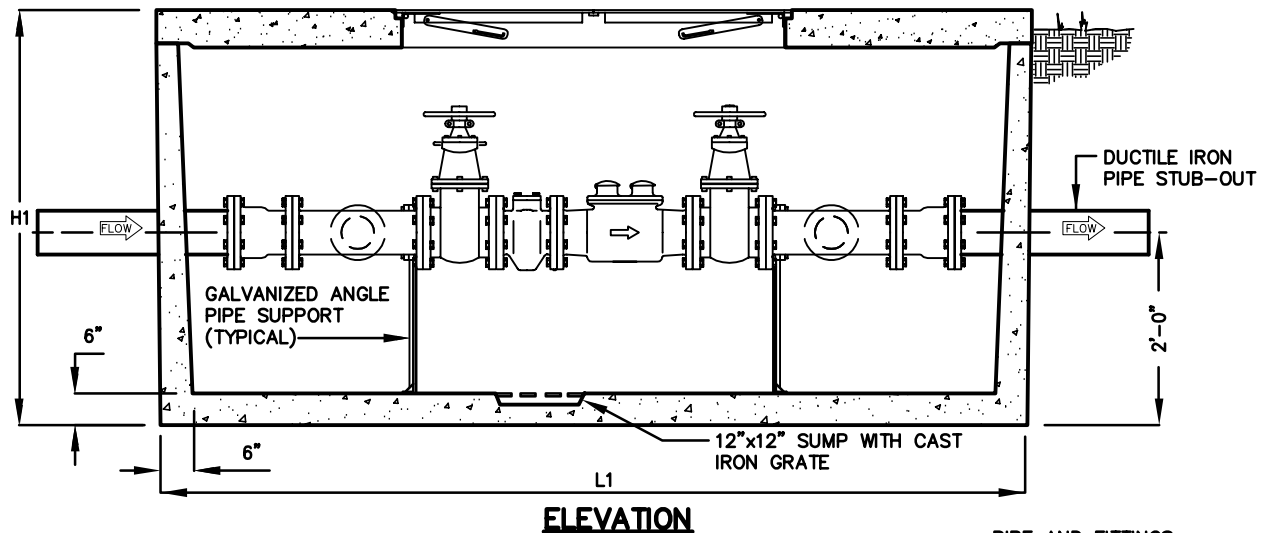
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SHEET NO. : W14



SIZE	BY PASS	L1	W1	H1
3"	2"	8'-8"	4'-8"	4'-6"
4"	2"	8'-8"	4'-8"	4'-6"
6"	4"	11'-0"	6'-0"	4'-6"



PIPE AND FITTINGS
SHALL BE DUCTILE IRON

SPECIFICATIONS

CONCRETE :

CLASS 1 CONCRETE WITH DESIGN STRENGTH OF 4500 PSI AT 28 DAYS. UNIT IS OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED DEPTH.

REINFORCEMENT:

GRADE 60 REINFORCED. STEEL BAR CONFORMING TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.

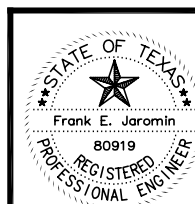
HATCHWAY:

3' X 5' GALVANIZED STEEL DOUBLE LEAF SPRING ASSISTED HATCHWAY - TRAFFIC RATED W/ SLAM LOCK.

PRECAST VAULT SHALL BE FROM PARK EQUIPMENT COMPANY MATCHING DETAIL SHOWN OR APPROVED OTHER.

DOMESTIC WATER METER VAULT

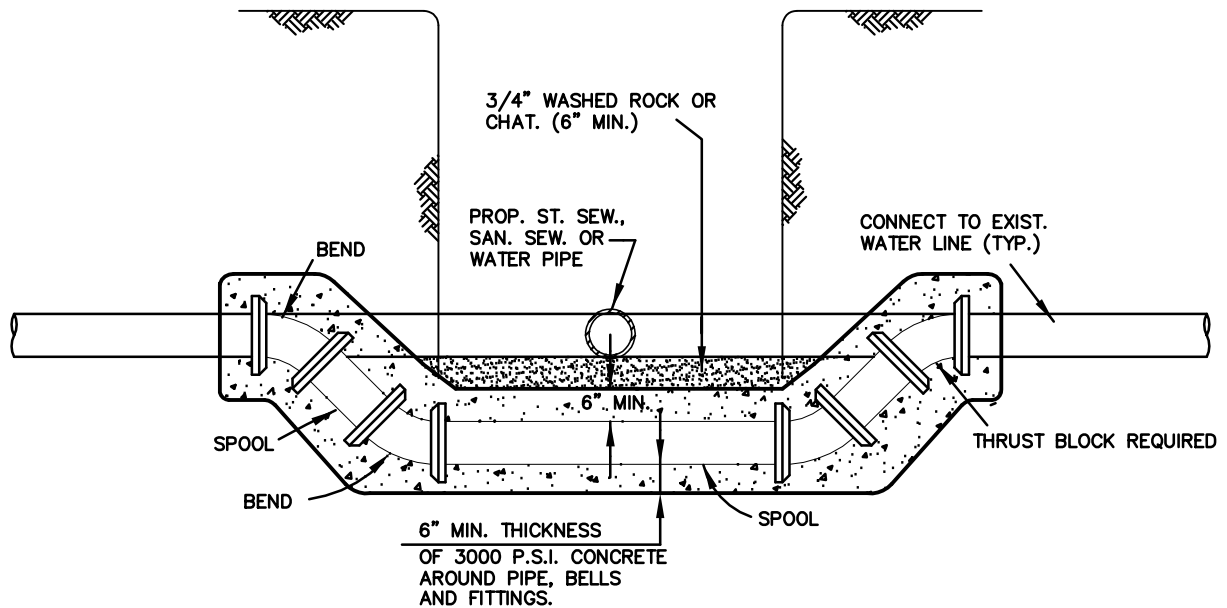
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SHEET NO. : W15

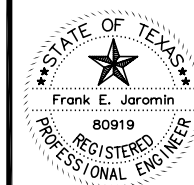


NOTES:

1. PROPOSED WATER PIPE SHALL BE DUCTILE IRON UNLESS OTHERWISE SPECIFIED IN PLANS. ALL FITTINGS SHALL BE DUCTILE IRON (M.J.-P.E.) MEGALUG.
2. PROPOSED PIPING & FITTINGS ARE SYMMETRIC ABOUT CENTER OF PROP. SAN. SEW. OR ST. SEW. PIPE AND SHALL RETAIN TEST PRESSURES.
3. CROSSING OF SANITARY SEWER SHALL BE IN ACCORDANCE WITH T.N.R.C.C. REQUIREMENTS.

WATER MAIN LOWERING

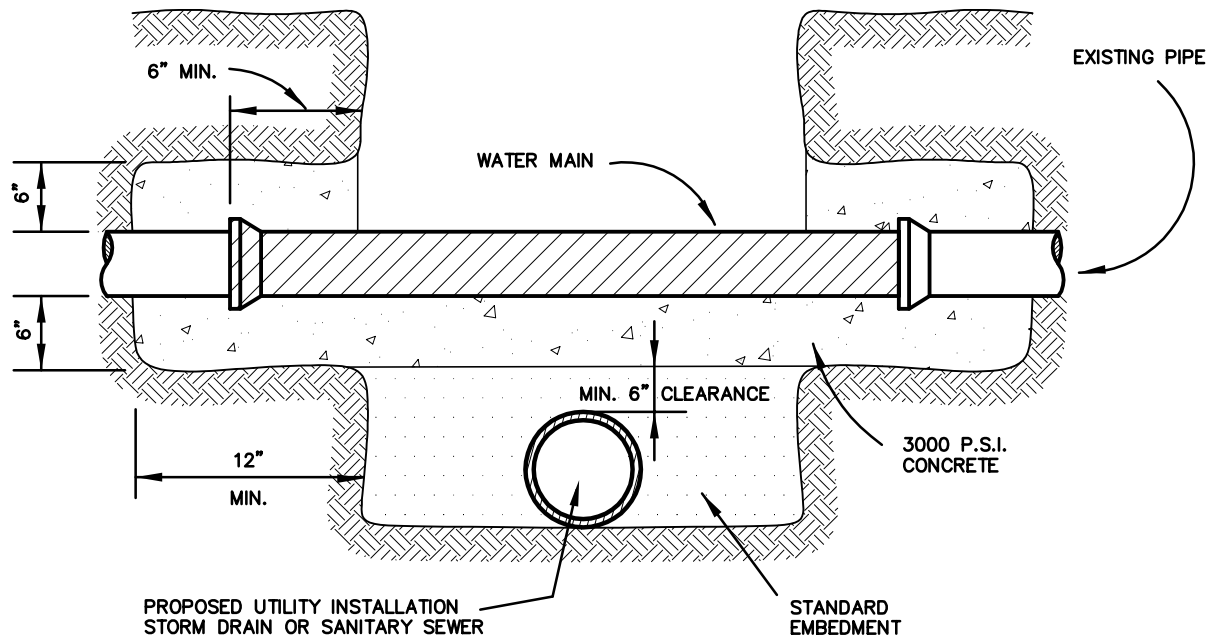
 CITY OF FRISCO, TEXAS
STANDARD CONSTRUCTION
DETAILS



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SHEET NO. : W16



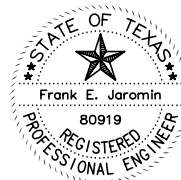
MINIMUM CLEARANCE NOTE:

1. WHERE A MINIMUM CLEARANCE OF 10'-0" (HORIZONTAL AND/OR VERTICAL) CANNOT BE OBTAINED, THEN THE POTABLE WATER MAIN SHALL BE CONCRETE ENCASED FOR 10'-0" EACH SIDE OF THE INTERSECTION OF THE INSTALLED UTILITY LINE.

2. CROSSING OF SANITARY SEWER SHALL BE IN ACCORDANCE WITH TNRCC REQUIREMENTS.

CROSSING UTILITY PIPE SUPPORT

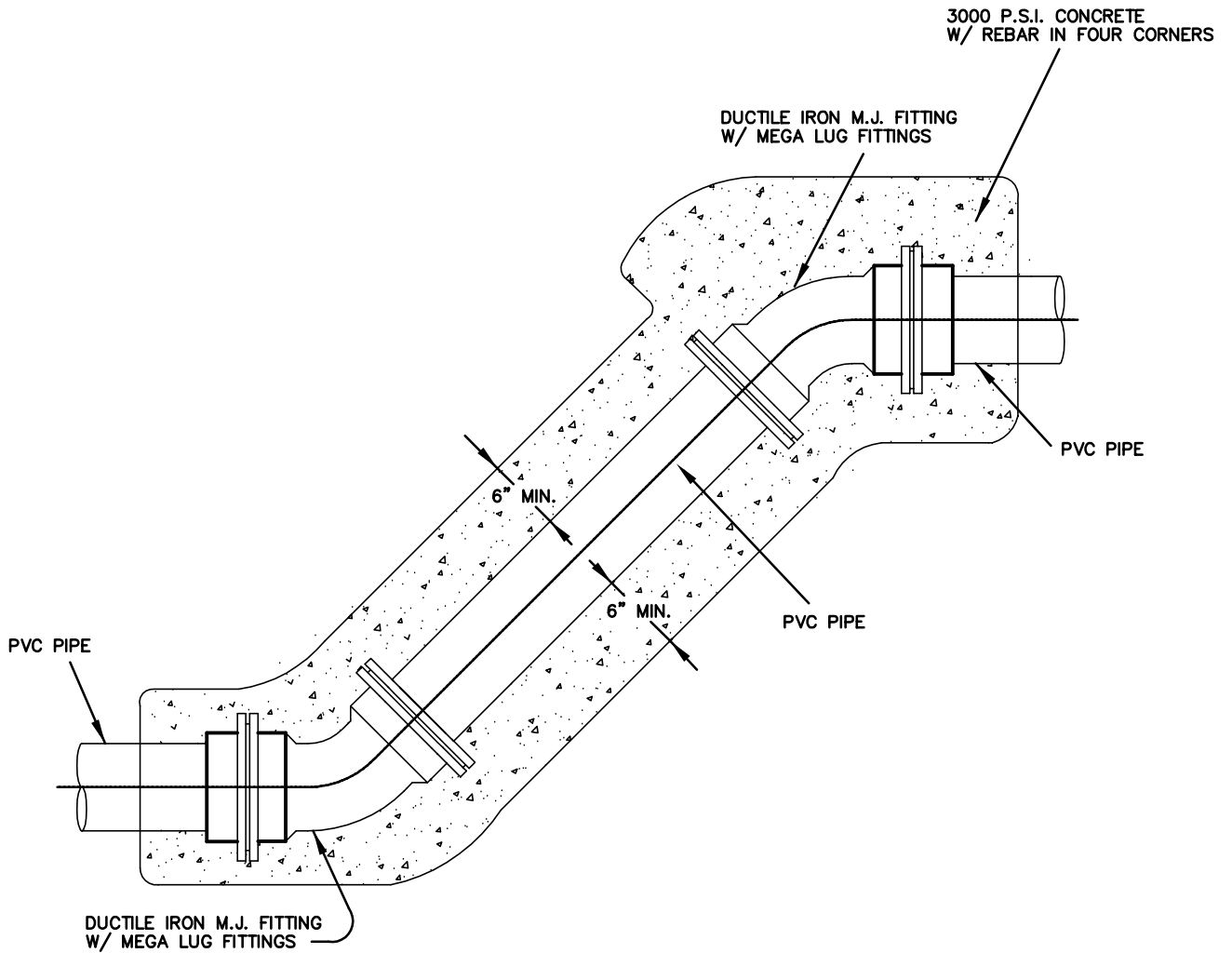
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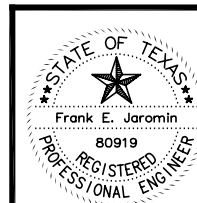
SHEET NO. : W17



**STANDARD HORIZONTAL
AND/OR VERTICAL OFFSETS**
NTS

THRUST HARNESS

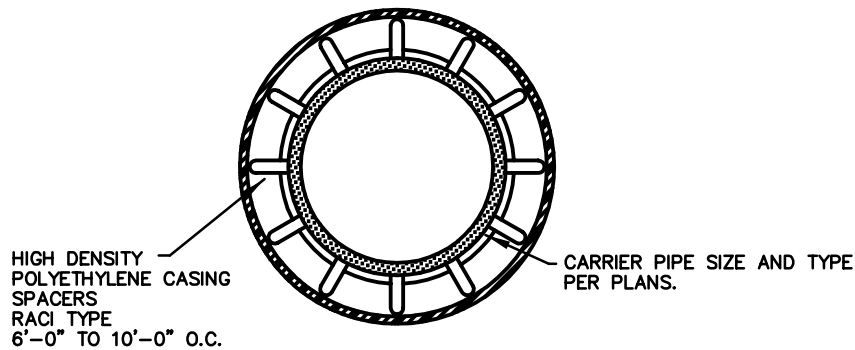
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SHEET NO. : W18



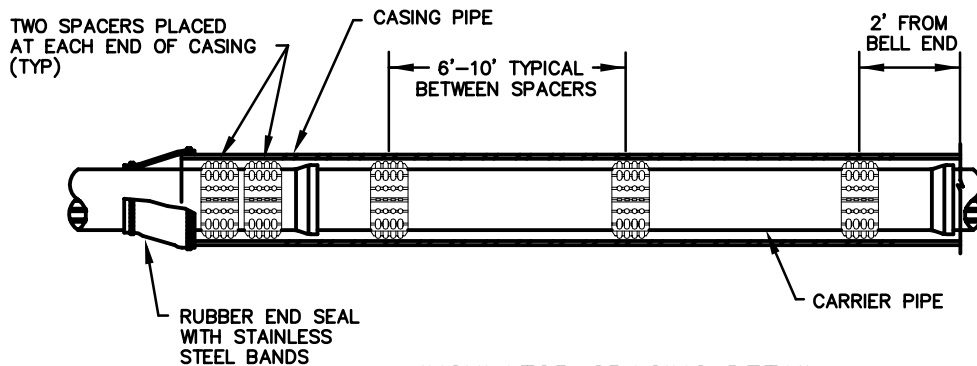
CASING SPACERS SHALL BE USED TO INSTALL CARRIER PIPE INSIDE THE ENCASEMENT PIPE. TO PROVIDE SUPPORT AROUND THE PERIPHERY OF THE PIPE SHOULD THE PIPE TWIST AS IT IS PUSHED THROUGH THE CASING, THE SPACERS SHALL BE OF A PROJECTION TYPE THAT HAS A MINIMUM NUMBER OF PROJECTIONS AROUND THE CIRCUMFERENCE TOTALLING THE NUMBER OF DIAMETER INCHES. FOR EXAMPLE, 8" PIPE SHALL HAVE A MINIMUM OF 8 PROJECTIONS AND 18" PIPE SHALL HAVE A MINIMUM NUMBER OF 18 PROJECTIONS.

CASING SPACERS SHALL HAVE A MAXIMUM SPACING SPAN OF 10 FEET. THE SPAN BETWEEN SPACERS SHOULD RESULT IN CONSERVATIVE LONG TERM SAFETY FACTOR PROVIDED TOTAL LOAD PER SPACER DOES NOT EXCEED THE MAXIMUM LOAD FOR PIPE FULL OF LIQUID PER SPACER LISTED IN THE LITERATURE FOR CLASS SPACER USED. SPACERS SHALL HAVE A MINIMUM HEIGHT THAT CLEARS THE PIPE BELL OR AS OTHERWISE INDICATED ON PLANS. CASING SPACERS SHALL USE DOUBLE BACKED TAPE PROVIDED WITH THE SPACERS, TO FASTEN TIGHTLY ONTO THE CARRIER PIPE, SO THAT THE SPACERS DO NOT MOVE DURING INSTALLATION.

PIPE INSULATOR DETAIL

NTS

SPACERS SHALL BE RACI HIGH DENSITY POLYETHYLENE OR CITY APPROVED OTHER.



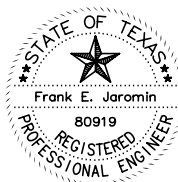
INSULATOR SPACING DETAIL

NTS

CASING

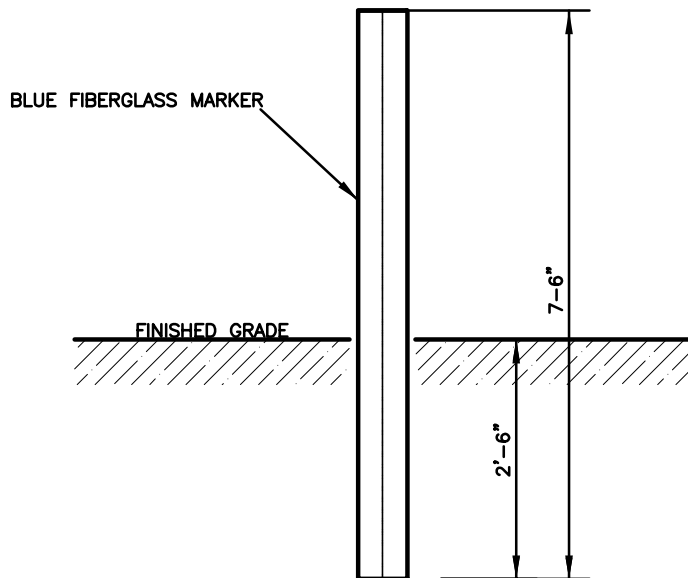
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STANDARD CONSTRUCTION
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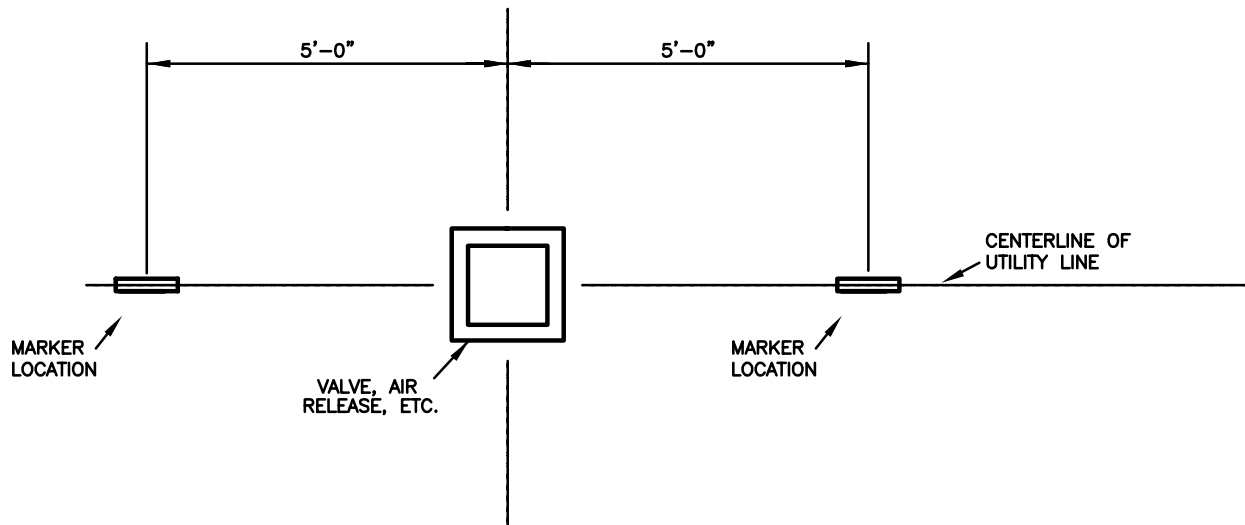


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ELEVATION



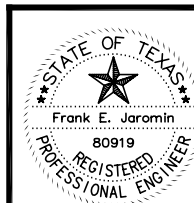
FIELD INSTALLATION DETAIL

GENERAL NOTES

1. ALL OFFSITE CITY OF FRISCO MAINS WITH VALVES, AIR RELEASE VALVES, ETC. SHALL BE MARKED AS DETAILED ON THIS SHEET.

OFFSITE WATER
MAIN MARKER

CITY OF FRISCO, TEXAS
STANDARD CONSTRUCTION
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